

REMARKS/ARGUMENTS

Status of the Application

Claims 1-25 are pending in the application. Claims 6, 14, and 21-23 have been amended. Support for these amendments is found in the specification, page 6, line 6 (claim6); page 7, lines 3-10 (claim 14); page 10, line 18 – page 11, line 37 (claims 21-23). New claim 26 has been added. No new matter has been added. The Examiner has objected to claim 15, stating that it would be allowable in independent form. Claims 1-7, 9-12, 16-17, 19-20 and 24-25 stand rejected under 35 U.S.C. §102; claims 5-10, 13-14, 18, and 21-23 stand rejected under 35 U.S.C. §103.

Applicants' Invention

Applicants' invention is directed to a coating composition with additives that is useful for refinishing automobiles, trucks and other substrates and surfaces. The coating cures rapidly at ambient or slightly elevated temperatures and hardens to a clear coat having excellent appearance and long term resistance to effects of exposure to weather and ultraviolet light. Compositions of the invention are useful as clear coat finishes to protect base and prime coatings, and may also be used as pigmented prime and base materials. The coating compositions are particularly useful for the repair and refinish of automobile and truck bodies and parts. The coatings are also useful for the protection and maintenance of numerous other surfaces and substrates, including those made of concrete, cement, wood, plastics and composites. For all of these uses, and especially those having automotive applications, rapid cure, excellent appearance and sustained weatherability are essential for achieving and maintaining the esthetic and protective functions of the compositions as primers, base coats and clear coat finishes. Rapid cure at ambient or slightly elevated temperature is especially advantageous for repairing and refinishing automotive or truck body components since curing an exterior coating at elevated temperatures is not generally feasible since to do so could damage unaffected areas (automobile or truck interior, for example).

To achieve these objects and results, the Applicants have invented a coating composition binder comprising a polyisocyanate crosslinking agent, isocyanate reactive components, optional polymeric crosslinking components, and optional oligomeric crosslinking components. One or more additives having antioxidant, light absorbing, and light stabilizing properties, are added to the binder (please see the application specification at page 3, lines 29-36). Applicants call the Examiner's attention to Table 2, on page 16, and Graph 1, on page 17, of the specification. The data on these pages show the comparative results for the exemplary coating compositions made and tested by the Applicants. These results clearly indicate that rapid cure at ambient or slightly elevated temperature, excellent hardness, appearance and weatherability properties have been achieved by Applicants' compositions, as set forth on these pages.

Claim Rejections – 35 U.S.C. §102

Claims 1-4, 11-12, 16-17, 19-20, and 24-25 are rejected under 35 U.S.C. §102(b) as being anticipated by Primeau, II, et al., U.S. Patent No. 6,013,755 (hereinafter Primeaux ‘755). To anticipate an invention, a *single* prior art reference must disclose *each and every* limitation of the claimed invention. Applicants’ binder contains components having isocyanate active functional groups, and optional polymeric and oligomeric crosslinking compoents, not disclosed in Primeaux ‘755. The Examiner has cited the Abstract of Primeaux ‘755 as anticipating the Applicants’ claims 1-4. The Abstract teaches formation of an aspartic acid ester by reacting an amine chain extender with a dialkyl maleate and then teaches that a polyurea elastomer can be formed by reacting the resulting aspartic acid diester with a polyalkylene amine and then reacting the product obtained with an isocyanate. The formula for the aspartic esters of Primeaux ‘755, set forth in Col. 3, lines 13-14, is limited to those in which R³ and R⁴ are, independently, either –H or –CH₃ (please see Col. 3, lines 4-9; the reference therein to the 2- and/or 3-position is evidently an error and was meant to say the 3-and/or 4-position, since R¹ and R² are clearly organic groups comprising the organic portion of the ester function, and that are inert to cyanate groups at 100° C or less). Applicants’ claim 4 does recite that the “isocyanate reactive component” is the reaction product of “methylene bis (cyclohexyl amine) and dialkyl maleate,” though this claim depends from claim 1 and the imported limitations of the main claim should also be considered in determining whether claim 4 is anticipated by the ‘755 Patent’s Abstract and the text cited at Col. 2, line 38 – Col. 3, line 15.

While the ‘755 Patent teaches mixing an (A) component and a (B) component prior to coating an automotive substrate, the reference teaches that component (A) “generally includes an isocyanate material” and component (B) “generally includes an amine-terminated polyether” (Col. 9, lines 39-43). On the other hand, claim 25 of the instant application specifies that component A is a polyisocyanate crosslinking agent and component B is an aspartic ester. The ‘755 Patent does not disclose further combination of these components with the optional polymers and/or oligomers prior to coating an automotive substrate.

The Examiner has also cited Col. 4, lines 15-40 to show that the ‘755 Patent teaches a genus of isocyanates including aliphatic or aromatic isocyanates, with particular examples such as hexamethylene diisocyanate, trimerized hexamethylene diisocyanate, and isophorone diisocyanate. The Applicants’ dependent claim 12, depending from claim 1, claims this group of polyisocyanates. Again, however, since this claim depends from claim 1, the elements imported from that independent claim, including the optional polymeric and oligomeric crosslinking components, must be considered. These are not disclosed by the ‘755 Patent.

As noted previously, the additives are not part of the claimed coating composition binder, though one or more of the additives must be used to assure the weatherability properties for the desired performance of the coatings. Further, the reference does not teach

or suggest the percentage composition by weight of the additives in relation to the weight of the binder, or any basis for attempting such a calculation from what is disclosed in the reference.

Therefore, Primeaux II '755 does not teach or suggest claims 1-4, 11-12, 16-17, 19-20 and 24-25. These claims are considered novel in light of the remarks and arguments set forth above. The Applicants respectfully request that the Examiner's rejection under 35 U.S.C. §102(b) be withdrawn.

Claims 1-7, 9-12, 16-17, 19-20, and 24-25 are rejected under 35 U.S.C. §102(e) as being anticipated by Primeaux, II, et al., U.S. Patent No. 6,399,736 (hereinafter Primeaux '736). Applicants reiterate their remarks and arguments presented above with respect to the rejections based on Primeaux II '755. The Examiner is respectfully requested to consider those remarks and arguments fully, along with the additional remarks and arguments made below, concerning Primeaux '736.

Primeaux '736 does not disclose hydroxy-functional acrylic polymer and/or oligomer crosslinking components made by polymerizing a monomer. Rather, the Primeaux '736 compounds are copolymers; the copolymers are based on (i) olefinic monomers containing hydroxyl groups and (ii) olefinic monomers which are free from hydroxyl groups (Col. 5, lines 47-49). Moreover, the acrylates form only part of component b), which is based on aspartic esters (Col. 5, lines 13-14), and which is one of two starting materials for preparing the polyurethanes. Primeaux '736 also teaches a very wide M_n range for the acrylates: about 800 to 50,000, preferably about 1,000 to 20,000 and more preferably about 5,000 to 10,000 (Col. 5, lines 41-44). The corresponding M_n ranges in the application are, respectively, for polymers, 5,000 to 50,000 and for oligomers 300 to 3,000. Thus, most of the Applicants' polymeric M_n range and all of Applicants' oligomeric M_n range, lie outside the range taught in Primeaux '736. Moreover, the ranges called for in Primeaux '736 are not directly comparable to Applicants' application, since the Applicants use monomers, each of which has an isocyanate active functional group, while Primeaux '736 teaches a copolymer wherein only one of two monomers forming the copolymer contains a hydroxyl function. In addition, while Primeaux '736 teaches only hydroxyl groups as reactive groups, the application claims (1) hydroxyl, carboxyl, glycidyl, amine, and any mixtures thereof for the polymeric components and (2) hydroxyl, carboxyl, glycidyl, amine, aldimines, phosphoric acid, ketimine, and any mixtures thereof, for the oligomeric components. Primeaux '736 teaches hydroxyl group contents of 0.1 – 12% by weight of component b) and does not teach or suggest the equivalent weight parameters set forth in the application or any basis for calculating such parameters (see, e.g., Applicants' claim 7).

For these reasons, claims 1-7, 9-12, 16-17, 19-20, and 24-25 are not anticipated by either Primeaux II '755 or Primeaux II '736. Applicants respectfully request that the Examiner withdraw these rejections based on 35 U.S.C. §102(b).

Claim Rejections – 35 U.S.C. §103

Claims 5-7 and 9-10 are rejected under 35 U.S.C. §103(a) as being unpatentable over Primeaux II ‘755 in view of Primeaux II ‘736. Primeaux II ‘755 and Primeaux II ‘736 are directed in part to elastomers that are useful for coating automotive interior trim components (please see Primeaux II ‘736, Col. 13, lines 55-64) where hardness would not be as critical as it is to the applications to which the Applicants’ coatings are directed. The Examiner asserts that Primeaux II ‘736 at Col. 6, lines 42-51 makes it *prima facie* obvious to add polyhydroxyl compositions of relatively high molecular weight to increase elasticity of the resulting polyurethane coating. To the contrary, this actually teaches away from the objects and results achieved in the Applicants’ invention. The reference states that the absence of polyhydroxyl compounds in either the prepolymers or semi-prepolymers of component a) and/or in component b) “increases the crosslinking density and hardness of the resulting coatings.” A critical property of the Applicants’ coating compositions is hardness and resistance to mechanical, chemical or physical degradation. Primeaux II ‘736 would have taught the Applicants’ to use polyhydroxyl-free components, or to limit the presence of polyhydroxyl components, to achieve desired hardness. Rather, the Applicants have discovered that polymerizing hydroxyl-containing monomers, and monomers containing a variety of other active functional groups, in forming the polyacrylic materials, does not sacrifice desired hardness at all. This discovery is contrary to the teachings of Primeaux II ‘736 and therefore the Applicants would not have perceived a reasonable expectation of success, and consequently would not have been motivated to combine references as the Examiner suggests. Thus, Applicants believe that claims 5-7 and 9-10 are patentable, and respectfully request that this rejection be withdrawn.

Claim 8 is rejected under 35 U.S.C. §103(a) as being unpatentable over Primeau II ‘736 in view of Huynh-Ba (US2002/0132934). To disqualify Huynh-Ba as prior art against the current claims, Applicants’ attorney of record makes the following statement: The subject application and US2002/013294 were, at the time the inventions of this application were made, owned by, or subject to an obligation to assign to, the same entity. This statement alone is sufficient evidence to disqualify Huynh-Ba from being used in a rejection under 35 U.S.C. §103(a) against the claims of this application.

Claim 13 is rejected under 35 U.S.C. §103(a) as being unpatentable over either one of Primeaux II ‘755 or ‘736 in view of Zwiener, et al., U.S. Patent No. 5,126,170. Claim 13 depends from claim 1. Applicants have submitted above that claim 1 is novel and therefore patentable; the Examiner has not rejected claim 1 on 35 U.S.C. §103(a) obviousness grounds. Any claim that depends from a nonobvious independent claim is, itself, nonobvious. *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988). Accordingly, the Applicants respectfully request the Examiner to withdraw this rejection.

Claim 14 is rejected under 35 U.S.C. §103(a) as being unpatentable over either one of Primeaux II '755 or '736 in view of in view of Schmitt, et al., U.S. Patent No. 5,652,301. Schmitt teaches the formation of a urethane oligomer by reacting dimethylolpropionic acid with a diisocyanate and a polyaspartate to form a hydrolytically stable dispersion. Specifically, the acid is a dihydroxy alkanoic acid, preferably α,α -dimethylol alkanoic acids, and most preferably, α,α -dimethylol-propionic acid. In contrast, the Applicants claim a urethane oligomer formed by reacting a polyisocyanate with a hydroxy-functional aliphatic carboxylic acid and a monohydric alcohol. There is nothing in Schmitt that teaches or suggests that the range of aliphatic acids disclosed and claimed by Applicants (in which terminal hydroxyl groups are not necessarily required) and an aliphatic or cycloaliphatic monohydrin alcohol with the polyisocyanate will achieve the objects and results of Applicants' invention. In addition, Schmitt neither teaches nor suggests the addition of an amine to produce a water-stable polyurethane, as is taught and claimed in this application (page 7, lines 9-10, new claim 26). Typically, novel compositions of the Applicants' invention are solvent based (page 10, lines 3-7), though an aqueous liquid carrier comprising water or water and other liquids, may be used in place of the solvent (page 4, lines 35-37). Since hydrolytic stability is not critical to the Applicants' coating compositions, the Applicants would not have been motivated to combine the cited teachings of Schmitt with those of Primeaux II '755 or '736. Applicants respectfully request that the rejection of claim 14 be withdrawn.

Claims 21-23 are rejected under 35 U.S.C. §103(a) as being unpatentable over either of Primeaux '755 or '736 in view of Cai, et al., U.S. Patent No. 5,591,807. Claims 21-23 have been amended for purposes of clarity by inserting words and figures that were inadvertently omitted in the original claims. With this clarity, Applicants believe that the amended claims are not obvious under 35 U.S.C. §103(a), and respectfully request that the Examiner withdraw this rejection.

Finally, claim 18 is rejected under 35 U.S.C. §103(a) as being unpatentable over either of Primeaux II '755 or '736 in view of Wolf. Claim 18 depends from claim 1. Applicants have submitted above that claim 1 is novel and therefore patentable; the Examiner has not rejected claim 1 on 35 U.S.C. §103(a) obviousness grounds. Any claim that depends from a nonobvious independent claim is, itself, nonobvious. Accordingly, the Applicants respectfully request the Examiner to withdraw this rejection.

Summary

In view of the foregoing amendments, remarks and arguments, Applicants respectfully submit that a complete response to the Non-Final Office Action mailed March 16, 2005 has been made. Applicants believe that this application stands in condition for allowance with withdrawal of all grounds of rejection. A Notice of Allowance is respectfully solicited. If the Examiner has questions regarding the application or the contents of this response, the Examiner is invited to contact the Applicants' representative at the telephone number below.

The Applicants believe that the fee for a two-month extension of the period of time for reply, in accordance with 37 C.F.R. 1.17(a)(2) is due. Please charge the extension fee to Deposit Account No. 04-1928 (E.I. du Pont de Nemours and Company). Should an additional fee be due that is not accounted for herein, please charge any such additional fee to the same Deposit Account.

In view of the foregoing, allowance of the above-referenced application is respectfully requested.

Respectfully submitted,



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